Class 21: Infinite Infinites, Exam 2

Schedule

Problem Set 9 is now due on **Wednesday, 23 November**.

See PDF Version for Notes.

Infinite Sets Recap

Definition. A set C is *countable* if and only if there exists a surjective function from $\mathbb{N}$ to C. (That is, ≤ 1 arrow out from $\mathbb{N}$, $ge1$ arrow in to C.)

Definition. A set C is *countably infinite* if and only if there exists a bijection between C and $\mathbb{N}$.

Cantor's Theorem

For **all** sets, S, $|pow(S)| > |S|$.

What does this mean for $|\mathbb{N}|$?

What is a *real number*?

Show there is a bijection between $[0,1)$ and $pow(\mathbb{N})$.

